AGU FALL MEETING
San Francisco | 12–16 December 2016

H33Q-04: The necessary burden of involving stakeholders in agent-based modelling for education and decision-making

Wednesday, 14 December 2016
14:18 - 14:30
Moscone West - 3024

We implemented a participatory process with water stakeholders for improving resilience to drought at watershed scale, and for reducing water pollution disputes in drought prone Northwestern Costa Rica. The purpose is to facilitate co-management in a rural watershed impacted by recurrent droughts related to ENSO. The process involved designing “ContaMiCuenca”, a hybrid agent-based model where users can specify the decisions of their agents.

We followed a Companion Modeling approach (www.commod.org) and organized 10 workshops that included research techniques such as participatory diagnostics, actor-resources-interaction and UML diagrams, multi-agents model design, and interactive simulation sessions. We collectively assessed the main water issues in the watershed, prioritized their importance, defined the objectives of the process, and pilot-tested ContaMiCuenca for environmental education with adults and children. Simulation sessions resulted in debates about the need to improve the model accuracy, arguably more relevant for decision-making. This helped identify sensible knowledge gaps in the groundwater pollution and aquifer dynamics that need to be addressed in order to improve our collective learning.

Significant mismatches among participants expectations, objectives, and agendas considerably slowed down the participatory process. The main issue may originate in participants expecting technical solutions from a positivist science, as constantly promoted in the region by dole-out initiatives, which is incompatible with the constructivist stance of participatory modellers. This requires much closer interaction of community members with modellers, which may be hard to attain in the current research practice and institutional context. Nevertheless, overcoming these constraints is necessary for a true involvement of water stakeholders to achieve community-based decisions that facilitate integrated water management.

Our findings provide significant guidance for improving the trans-generational engagement of stakeholders in participatory modeling processes in a context of limited technical skills and information, research expectative mismatches, and poor multi-stakeholder interaction for decision-making.

Authors

Pierre Bommel *
CIRAD Montpellier

Pável Bautista Solís
Tropical Agricultural Research and Higher Education Center

Gregoire Leclerc
CIRAD Montpellier

Find Similar

View Related Events

Day: Wednesday, 14 December 2016